

- 18 -

CLAIMS

1. A method of locating an assembly point (P) on a first part (40), at which assembly point the first part is to be joined to a second part (1), the method comprising the steps of:

5 measuring and determining an assembly location (1a, 1b, 1c, 1d) in respect of the second part;

 measuring a portion (42a, 42b, 42c) of a surface (43) of the first part, the surface being spaced away from the second part, so as to define the position and orientation of the surface; and

10 calculating the assembly point on the surface of the first part, where the surface of the first part is intersected by a vector (N) passing between the determined assembly location and the surface of the first part.

2. A method of locating an assembly point (P) on a first part (40), through which the first part is to be joined to a second part (1), the method comprising the steps of:

15 determining an assembly location (1a, 1b, 1c, 1d) in respect of the second part;

 offering up the first part for assembly with the second part, the first part overlying the determined assembly location;

20 the method being characterised by the steps of:

 measuring a portion (42a, 42b, 42c) of a surface (43) of the first part spaced away from the second part so as to define the position and orientation of the surface;

25 calculating the assembly point on the surface of the first part, where the surface of the first part is intersected by a vector (N) passing between the determined assembly location and the surface of the first part; and

 indicating the calculated the assembly point on the surface of the first part.

30 3. A method according to claim 1, further comprising the step of determining a reference position fixed relative to the second part.

- 19 -

4. A method according to claim 3, wherein the steps of determining the assembly location and measuring and determining the reference position are performed by a measuring device located in a first position, and the steps of measuring and determining the reference position and step of measuring a portion of a surface of the first part is performed by the or another measuring device in a second position.

5. A method according to claim 4, wherein the steps of measuring from the first and second positions are performed subsequent to the further step of offering up the first part for assembly with the second part, the first part overlying the determined assembly location.

6. A method according to any preceding claim, wherein at least one measuring step or the step of indicating is performed by a measuring device of known position.

7. A method according to claim 6, wherein the step of determining an assembly location further comprises the step of measuring the vector and the distance to a datum position associated with the second part from a measuring device of known position and determining the position of the assembly location relative to the measured datum position using stored CAD data.

8. A method according to any preceding claim, further comprising the step of verifying that the position and orientation of the surface of the first part relates in a predetermined manner to the position and orientation of the surface of the second part local to the determined assembly location.

9. A method according to any preceding claim, wherein the step of determining the assembly location is carried out using a retro-reflector supported relative to a guide hole located in the second part.

10. A method according to any preceding claim, wherein at least one measuring step or the step of indicating is carried out using a non-contact technique.

- 20 -

11. A method according to claim 10, wherein at least one measuring step or the step of indicating is carried out using a laser tracker device.

5 12. A computer program comprising program code means for performing the method steps of measuring, calculating and indicating as defined in any one of claims 1 to 11 when the program is run on a computer and/or other processing means associated with suitable measuring and indicating means.

Sub
A3
10 13. A computer program product comprising program code means stored on a computer readable medium for performing the method steps of measuring, calculating and indicating as defined in any one of claims 1 to 11 when the program is run on a computer and/or other processing means associated with suitable measuring and indicating means.